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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/988,266	11/19/2001	Tet Hin Yeap	AP813US	8393
7590 09/14/2005				
Adams Cassan Maclean P.O. Box 11100, Station H Ottawa, ON K2H 7T8 CANADA				
			EXAMINER AGHDAM, FRESHTEH N	
			ART UNIT 2631	PAPER NUMBER

DATE MAILED: 09/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/988,266

Applicant(s)

YEAP, TET HIN

Examiner

Freshteh N. Aghdam

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 19 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 9 and 10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-8 is/are allowed.
- 6) ☒ Claim(s) 9 and 10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_.

## **DETAILED ACTION**

### ***Claim Objections***

Claim 10 is objected to because of the following informalities:

As to claim 10, step (iv) should be replaced by "upsampling and interpolating the digital reference noise signal to the same sampling rate as the digital signal"; also, in step (vi), line 10, "the decimated signal" should be replaced by "the digital signal".

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Diab et al (US 6,826,419), and further in view of Romesburg (US 5,903,819).

As to claims 9 and 10, Diab teaches an adaptive noise suppression method comprising deriving a digital reference noise signal representing noise in a selected portion of a frequency spectrum of the input signal (Fig. 4,  $n'(t)$ ); converting the input signal to a digital signal by sampling the input signal at a first sampling frequency (Fig. 4, means 24b); the reference noise signal has the same sampling rate as the input signal (Fig. 4, means 24 a and b); using an adaptive filter means (Fig. 5, means 32)

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having adjustable coefficients, filtering the reference noise signal to provide a noise estimate signal; subtracting the noise estimate signal from the measured input signal (Fig. 5,  $S(t)$ ); and using the noise suppressed signal to adjust the coefficients of the adaptive filter for the next sample (Fig. 5). One of ordinary skill in the art would clearly recognize that sampling the reference noise signal at frequency ( $F_s/M$ ) and then upsampling it to the same rate as the digital signal ( $F_s$ ) is a design choice and well known in the art and depends on what application is more desirable such as cost and power consumption versus less hardware required. Romesburg, in the same field of endeavor, teaches sampling the reference noise before inputting it to the adaptive filter (Fig. 4, means 154, 162, 172, and 176; Col. 8, Lines 35-64). Therefore, it would have been obvious to one of ordinary skill in the art to combine the teaching of Romesburg with Diab in order to suppress periodic noise superimposed upon an informational signal (Col. 8, Lines 16-20).

### ***Allowable Subject Matter***

Claims 1-8 are allowed. The following is a statement of reasons for the indication of allowable subject matter:

As to claims 1-8, the prior art of record fails to teach a noise suppression method and/or apparatus as recited in claims 1-8.

### ***Conclusion***

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Freshteh N. Aghdam whose telephone number is (571) 272-6037. The examiner can normally be reached on Monday through Friday 9:00-5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Freshteh Aghdam

September 12, 2005

  
**KEVIN BURD**  
**PRIMARY EXAMINER**